

§ 27.1307

(v) Warning or caution devices to signal to the flight crew when ferromagnetic particles are detected by the chip detector required by § 27.1337(e).

[Doc. No. 5074, 29 FR 15695, Nov. 24, 1964, as amended by Amdt. 27-9, 39 FR 35462, Oct. 1, 1974; Amdt. 27-23, 53 FR 34214, Sept. 2, 1988; Amdt. 27-29, 59 FR 47767, Sept. 16, 1994; Amdt. 27-37, 64 FR 45095, Aug. 18, 1999; 64 FR 47563, Aug. 31, 1999]

§ 27.1307 Miscellaneous equipment.

The following is the required miscellaneous equipment:

- (a) An approved seat for each occupant.
- (b) An approved safety belt for each occupant.
- (c) A master switch arrangement.
- (d) An adequate source of electrical energy, where electrical energy is necessary for operation of the rotorcraft.
- (e) Electrical protective devices.

§ 27.1309 Equipment, systems, and installations.

(a) The equipment, systems, and installations whose functioning is required by this subchapter must be designed and installed to ensure that they perform their intended functions under any foreseeable operating condition.

(b) The equipment, systems, and installations of a multiengine rotorcraft must be designed to prevent hazards to the rotorcraft in the event of a probable malfunction or failure.

(c) The equipment, systems, and installations of single-engine rotorcraft must be designed to minimize hazards to the rotorcraft in the event of a probable malfunction or failure.

(d) In showing compliance with paragraph (a), (b), or (c) of this section, the effects of lightning strikes on the rotorcraft must be considered in accordance with § 27.610.

[Doc. No. 5074, 29 FR 15695, Nov. 24, 1964, as amended by Amdt. 27-21, 49 FR 44435, Nov. 6, 1984]

§ 27.1317 High-intensity Radiated Fields (HIRF) Protection.

(a) Except as provided in paragraph (d) of this section, each electrical and electronic system that performs a function whose failure would prevent the continued safe flight and landing of the

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rotorcraft must be designed and installed so that—

(1) The function is not adversely affected during and after the time the rotorcraft is exposed to HIRF environment I, as described in appendix D to this part;

(2) The system automatically recovers normal operation of that function, in a timely manner, after the rotorcraft is exposed to HIRF environment I, as described in appendix D to this part, unless this conflicts with other operational or functional requirements of that system;

(3) The system is not adversely affected during and after the time the rotorcraft is exposed to HIRF environment II, as described in appendix D to this part; and

(4) Each function required during operation under visual flight rules is not adversely affected during and after the time the rotorcraft is exposed to HIRF environment III, as described in appendix D to this part.

(b) Each electrical and electronic system that performs a function whose failure would significantly reduce the capability of the rotorcraft or the ability of the flightcrew to respond to an adverse operating condition must be designed and installed so the system is not adversely affected when the equipment providing these functions is exposed to equipment HIRF test level 1 or 2, as described in appendix D to this part.

(c) Each electrical and electronic system that performs a function whose failure would reduce the capability of the rotorcraft or the ability of the flightcrew to respond to an adverse operating condition, must be designed and installed so the system is not adversely affected when the equipment providing these functions is exposed to equipment HIRF test level 3, as described in appendix D to this part.

(d) Before December 1, 2012, an electrical or electronic system that performs a function whose failure would prevent the continued safe flight and landing of a rotorcraft may be designed and installed without meeting the provisions of paragraph (a) provided—

(1) The system has previously been shown to comply with special conditions for HIRF, prescribed under §21.16, issued before December 1, 2007;

(2) The HIRF immunity characteristics of the system have not changed since compliance with the special conditions was demonstrated; and

(3) The data used to demonstrate compliance with the special conditions is provided.

[Doc. No. FAA-2006-23657, 72 FR 44026, Aug. 6, 2007]

INSTRUMENTS: INSTALLATION

§ 27.1321 Arrangement and visibility.

(a) Each flight, navigation, and powerplant instrument for use by any pilot must be easily visible to him.

(b) For each multiengine rotorcraft, identical powerplant instruments must be located so as to prevent confusion as to which engine each instrument relates.

(c) Instrument panel vibration may not damage, or impair the readability or accuracy of, any instrument.

(d) If a visual indicator is provided to indicate malfunction of an instrument, it must be effective under all probable cockpit lighting conditions.

(Secs. 313(a), 601, 603, 604, and 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, 1424, and 1425); and sec. 6(c) of the Dept. of Transportation Act (49 U.S.C. 1655(c)))

[Doc. No. 5074, 29 FR 15695, Nov. 24, 1964; 29 FR 17885, Dec. 17, 1964, as amended by Amdt. 27-13, 42 FR 36971, July 18, 1977]

§ 27.1322 Warning, caution, and advisory lights.

If warning, caution or advisory lights are installed in the cockpit, they must, unless otherwise approved by the Administrator, be—

(a) Red, for warning lights (lights indicating a hazard which may require immediate corrective action);

(b) Amber, for caution lights (lights indicating the possible need for future corrective action);

(c) Green, for safe operation lights; and

(d) Any other color, including white, for lights not described in paragraphs (a) through (c) of this section, provided the color differs sufficiently from the

colors prescribed in paragraphs (a) through (c) of this section to avoid possible confusion.

[Amdt. 27-11, 41 FR 55470, Dec. 20, 1976]

§ 27.1323 Airspeed indicating system.

(a) Each airspeed indicating instrument must be calibrated to indicate true airspeed (at sea level with a standard atmosphere) with a minimum practicable instrument calibration error when the corresponding pitot and static pressures are applied.

(b) The airspeed indicating system must be calibrated in flight at forward speeds of 20 knots and over.

(c) At each forward speed above 80 percent of the climbout speed, the airspeed indicator must indicate true airspeed, at sea level with a standard atmosphere, to within an allowable installation error of not more than the greater of—

(1) ± 3 percent of the calibrated airspeed; or

(2) Five knots.

(Secs. 313(a), 601, 603, 604, and 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, 1424, and 1425); and sec. 6(c) of the Dept. of Transportation Act (49 U.S.C. 1655(c)))

[Doc. No. 5074, 29 FR 15695, Nov. 24, 1964, as amended by Amdt. 27-13, 42 FR 36972, July 18, 1977]

§ 27.1325 Static pressure systems.

(a) Each instrument with static air case connections must be vented so that the influence of rotorcraft speed, the opening and closing of windows, airflow variation, and moisture or other foreign matter does not seriously affect its accuracy.

(b) Each static pressure port must be designed and located in such manner that the correlation between air pressure in the static pressure system and true ambient atmospheric static pressure is not altered when the rotorcraft encounters icing conditions. An anti-icing means or an alternate source of static pressure may be used in showing compliance with this requirement. If the reading of the altimeter, when on the alternate static pressure system, differs from the reading of the altimeter when on the primary static system by more than 50 feet, a correction card